changes of the translation apparatus as well as with the most noticeable effect, the massive synthesis of a collection of proteins known as the heat shock proteins. Attention is paid not only to the autoregulation of their production but also to their role as protectors of cells against stress damage. The structures of some heat shock proteins have been highly conserved in evolution indicating an early occurrence of this mode of temperature protection in ancient organisms. Detailed consideration is also given to the influence of supraoptimal temperatures on membrane structure as well as cytoskeleton changes which may have a profound influence on a large number of cellular functions. Other chapters deal with the response in eukaryotic cells in relation to virus infection and developmental programmes.

Besides being an excellent discussion of stress physiology in an age of molecular biology, the book also carries a comprehensive compendium of relevant references. A problem however that must be conceded is that new knowledge in this field is accumulating rapidly. The number of scientists interested in heat shock is growing and its possible relevance to cancer as well as cancer therapy is beginning to be more appreciated. Moreover there are now new developments in our understanding of the genetics and molecular biology of the response in bacteria which will inevitably influence the thinking of eukaryotic biologists. On balance this is an excellent book particularly for those who are contemplating entering the field. Hopefully the editor and his colleagues will be persuaded to produce further editions to keep up with the accelerating pace of research in this fascinating area of biology.

R.H. Burdon

Fatty Acid Metabolism and Its Regulation

New Comprehensive Biochemistry, Vol.7

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The editor is to be congratulated on assembling such an excellent set of reviews. These show that the emphasis of much of the research in this field since the previous volume on this topic was published in 1971 has been concentrated on the molecular characterization of the enzymes of fatty acid metabolism and their regulation. The first two chapters deal in detail with fatty acid synthesis de novo, i.e. the structure, function and regulation of acetyl-CoA carboxylase (Numa and Tanabe) and of fatty acid synthetase (Alberts and Greenspan) from animal, yeast and bacterial sources. In Chapter 3, Schweizer describes the use of appropriate mutants to study the genetics of fatty acid biosynthesis in yeast. Chapter 4 by Jeffcoat and James covers the enzymology and the regulation of desaturation and elongation of preformed fatty acids in mammals; the enzymes involved in fatty acid oxidation in animals and the regulation of this enzyme system are critically examined in Chapter 5 by Bremer and Osmundsen. This is followed by fatty acid biosynthesis in higher plants (Stumpf) and the last chapter by Kindl illustrates the paucity of our knowledge of lipid degradation in higher plants compared with that in animals.

These reviews provide a first class summary of the present 'state of the art' as newer aspects of research in the more developed areas are getting under way, e.g. studies of the genes encoding well-characterized enzymes involved in the control of fatty acid metabolism, and the expression of these genes.

R.R. Dils